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THE PLACE OF FORESTRY IN THE ECONOMIC DEVELOPMENT OF THE PARK FALLS AREA

WISCONSIN

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Lake States Forest Experiment Station [1]

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THE PLACE OF FORESTRY IN THE ECONOMIC DEVELOPMENT OF THE PARK FALLS AREA, WISCONSIN

By Howard W. Mayne

PURPOSE OF STUDY

Northern Wisconsin has made notable progress during the past 15 years in improving the conditions which, in the early 30's, made it and other portions of the Great Lakes cut-over area one of the serious problem areas of the Nation. Greatly improved fire protection and an ambitious program of county, state, and federal forest management have healed many of the scars caused by destructive logging and forest fires. Systematic programs of county zoning and settler relocation have removed the outstanding cases of unwise colonization.

Emigration of surplus workers to war plants and to the armed services during World War II have solved, at least temporarily, the problems of local unemployment. At the same time, an increased demand for forest products and increased recreational activity have created new job opportunities. Additional State aids for schools, roads, and forest work have eased the financial burdens of local government. Nevertheless, northern Wisconsin still faces serious problems of adjustment to secure a stable economy.

As a result of depletion of the most desirable types of timber, most of the large sawmills have closed and many other wood-using plants have trouble obtaining adequate timber supplies. Activity to bring in new industries has often been planless and in some cases unwise. The net result has been that northern Wisconsin, while ceasing to retrogress, is not yet making the forward progress of which it is capable.

This study was made in a typical locality in northern Wisconsin, for the purpose of considering specifically some of the things which could be done in forestry and forest industrial development, to contribute to the general welfare of the area. The locality chosen for study was that lying tributary to Park Falls.

The study was concerned primarily with (1) how can the timber yields of the forest be increased; (2) how can wood-using industries be brought into closer balance with available timber yields; and (3) what action can be undertaken by public agencies and local people to facilitate these adjustments.

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[1] Maintained at University Farm, St. Paul, Minnesota, in cooperation with the University of Minnesota.

THE PARK FALLS AREA

General Description

The area chosen for this study is one which would logically supply raw materials for wood-using industries along and near Wisconsin Highway 13 from Mellen to Phillips. It comprises a 1,825,000-acre block surrounding Park Falls (figure 1), with boundaries drawn along township lines to facilitate the use of existing data. Parts of Price, Sawyer, Bayfield, Ashland and Iron Counties are included. It is believed that timber imports and exports balance quite closely in this area, the exports consisting of aspen saw timber and pulpwood, and the imports of coniferous pulpwood and large hardwood veneer and sawlogs.

Nearly one-quarter of the area is in peat or swamp, the sites of former glacial lakes. Much of the highland is stony or steeply rolling, hard to clear, and mostly unsuitable for agriculture. It is interspersed with small tracts of productive land. Rainfall averages 30 to 32 inches per year. A short frost-free season, averaging only 110 to 115 days, is a severe handicap to agriculture.

The population was 26,217 in 1940, an average of nine persons per square mile. Of this number, 7,434 were urban (living in Park Falls, Phillips, Butternut, and Mellen), and 18,783 were rural (including such communities as Fifield, Glidden, Mercer, Manitowish, Winter, Draper, Loretta, and Oxbo). Of 16,693 persons in the working-age group of 15 to 64, 56 percent were males, the predominance of men probably resulting from the migration of women in search of better economic opportunities. The largest national groups were Swedish and German, with a good representation of Norwegians and Finns and a few clusters of Middle Europeans.

After over 50 years of agricultural development, the area in farms is only 16 percent of the total land area and cropland harvested in 1944 was only 21.9 percent of the land in farms, or 3½ percent of the total land area. The principal type of farming is dairying. Gross farm income is low, ranging in 1944 from $1,535 per farm in Iron County to $1,827 in Bayfield. Cash expenditures for feed, machinery, hired labor, and taxes, met from these gross incomes, leave very low net incomes. Many of the farms are operated on a subsistence or part-time basis, as is general in the northern Wisconsin cut-over area.

A rough estimate of the amount of underemployment (excess labor) on farms in 1945 is one person per farm2/. With the return of people from war industries and military service, excess labor is probably even higher at present.

2/ This estimate was made by combining the average amount of livestock and crops per farm (from the 1945 U.S. Census of Agriculture) with the labor requirements (war units) used in judging farm draft deferments during the war. Labor supply was the Census figure for "number of persons 14 years old and over, working on farms the equivalent of 2 or more days during the week ending January 6, 1945." After taking only half the war-unit standard for full farm employment (cutting 16 war units to 8) to allow for the exodus of the more able-bodied workers to city industries or the armed forces, there still appeared to be an excess of about one person per farm.

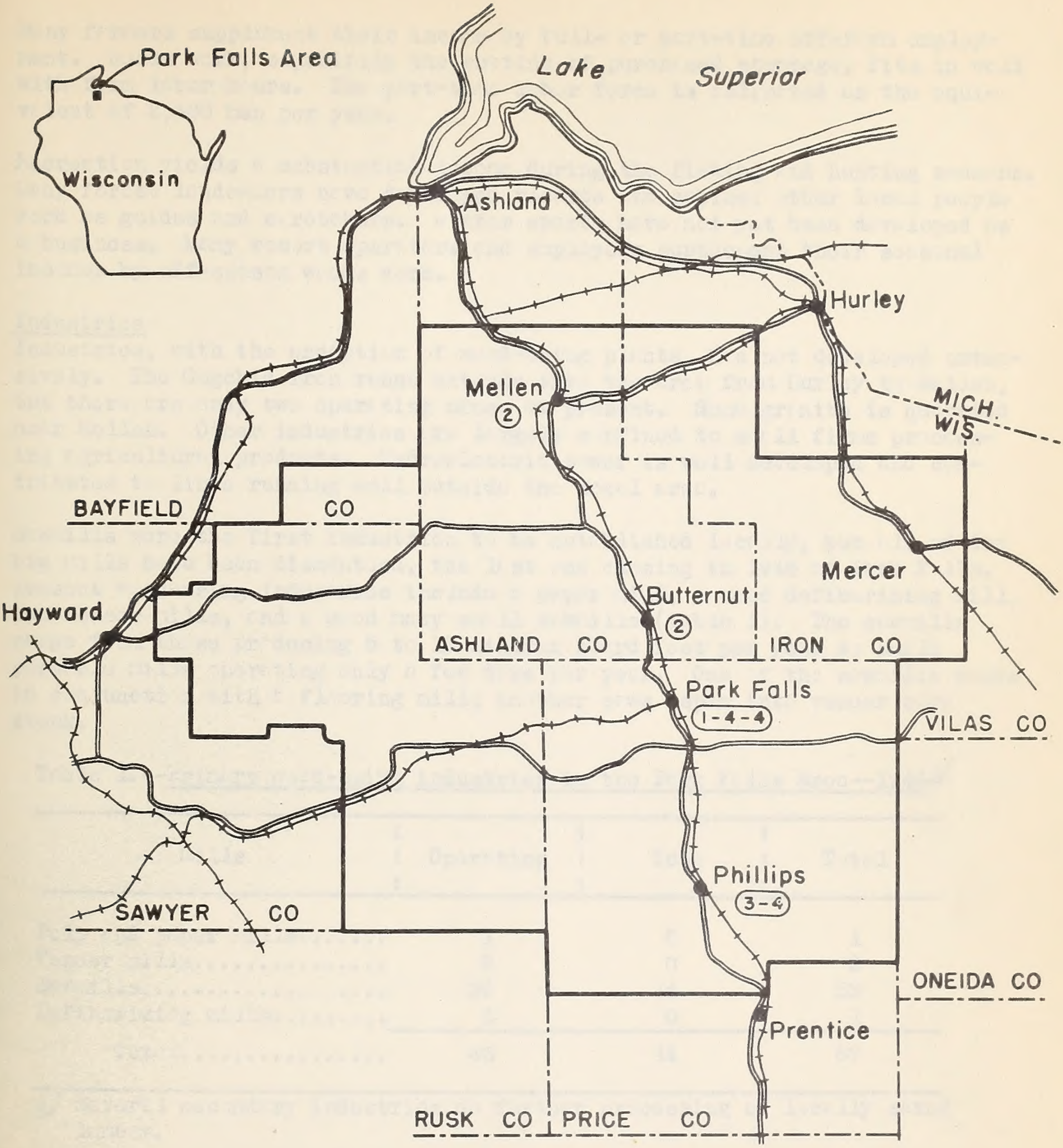

FIG. I HIGHWAYS, RAILROADS AND INDUSTRIES OF THE PARK FALLS AREA

━━━━	Park Falls Area	①	Paper Mill
—·—·—	State Boundary	②	Veneer Mill
—··—··—	County Boundary	③	Defiberizing Mill
┼┼┼┼	Railroads	④	Large Sawmill
═══	Main Highways	●	Town or City

Many farmers supplement their income by full- or part-time off-farm employment. Woods work, especially the cutting of purchased stumpage, fits in well with farm labor hours. The part-time labor force is estimated as the equivalent of 2,400 men per year.

Recreation yields a substantial income during the fishing and hunting seasons. Many forest landowners have developed resorts and cabins; other local people work as guides and caretakers. Winter sports have not yet been developed as a business. Many resort operators and employees supplement their seasonal incomes by off-season woods work.

Industries

Industries, with the exception of wood-using plants, has not developed extensively. The Gogebic iron range extends into the area from Hurley to Mellen, but there are only two operating mines at present. Some granite is quarried near Mellen. Other industries are largely confined to small firms processing agricultural products. Hydroelectric power is well developed and contributes to lines running well outside the local area.

Sawmills were the first industries to be established locally, but all of the big mills have been dismantled, the last one closing in 1945 at Park Falls. Present wood-using industries include a paper mill, a wood defiberizing mill, two veneer mills, and a good many small sawmills (table 1). The sawmills range from those producing 5 to 10 million board feet per year to small portable mills operating only a few days per year. One of the sawmills works in conjunction with a flooring mill; another saws aspen into veneer core stock.

Table 1.--Primary wood-using industries in the Park Falls Area--1946[1]

Mills	Operating	Idle	Total
Pulp and paper mills.......	1	0	1
Veneer mills................	2	0	2
Sawmills....................	39	14	53
Defiberizing mills.........	1	0	1
Total................	43	14	57

[1] Several secondary industries do further processing of locally sawed lumber.

The veneer mills, operating at Butternut and Mellen, get a high proportion of their logs from the Upper Peninsula of Michigan. Local second-growth hardwoods are still too small to supply many veneer logs for at least another 30 years.

The pulp and paper mill, established at Park Falls considerably later than the large sawmills, utilizes smaller wood and gives more employment per unit of material, thus benefiting the community to a greater extent than a sawmill using an equal volume of timber. At present the mill depends on sources outside the area for much of its softwoods. A groundwood and sulphite mill, it normally consumes a high proportion of spruce, fir, and hemlock. However, the proportion of aspen was increased during the war to take advantage of local wood supplies.

The wood-defiberizing mill at Phillips is a relatively new development, producing wood fiber from aspen. The wood is ground mechanically, baled, and shipped to plants manufacturing roofing, linoleum, and similar products. Value added and local man-hours per cord are relatively low. However, the mill can use small sticks and some low-grade material. It is the second largest local user of aspen, ranking after the paper mills.

Three medium-sized sawmills each saw about 5 million board feet of lumber and ties per year. Many small sawmills operate intermittently. The three largest mills in 1945 sawed nearly twice as much as the 24 small mills combined. Production by the smaller mills was stepped up in the immediate postwar period, but has been decreasing recently.

Miscellaneous industries include a plant manufacturing crates, clothes dryers, and similar products; a shingle mill, and a few small handle mills. A cheese-box plant burned in 1947. Some of these plants buy lumber or other rough material from sawmills, instead of sawing logs themselves.

Total annual employment in logging and milling is estimated at about 2,500 men full time.[3/] This is from one-fourth to one-third of the total labor force, which was estimated at 9,542 in 1940. Employment in the resort business and in trade and service to recreationists, loggers, and mill workers also depends on the forests. In all probability more than half the area's economic activity results directly or indirectly from its forest resources.

Forests

Forest, marsh, and wild land total 1,578,244 acres (table 2) or 86 percent of the total land area[4/]. Of this area, an estimated 72 percent is productive forest and 28 percent is unproductive upland, stagnant swamp, and open swamp. At least half of the unproductive upland, more than 100,000 acres, is made up of abandoned fields, brush, and other areas which did not reseed after logging or fires. It is potentially productive, but would require planting.

[3/] Employment was estimated from 1946 pay-roll information submitted to the Wisconsin Industrial Commission. Ten of the area's wood-using firms made payments into the unemployment compensation fund in 1946. These include the paper mill, the defiberizing mill, two veneer mills, five sawmills, and one plant making various finished products from rough lumber. The total 1946 "covered" pay-roll was $1,650,000. At 80 cents per hour this would be equivalent to over 2 million man-hours, or full-time employment for about 1,200 men. Only firms employing six or more men for 18 or more weeks in the year were included. Supervisory workers above foremen were not included. Thus, the total income and employment for all forest work is estimated to be at least double that reported to the Industrial Commission.

[4/] This figure is a residual obtained by deducting nonforest farm land, town and resort sites, rights-of-way, etc., from the gross land area.

Table 2.--Forest, wild, and swamp land, Park Falls area

Type of land	Forest land	
	Productive 1/	Nonproductive 2/
	Acres	Acres
Upland forest	965,886	......
Productive swamp	170,450	......
Unproductive upland	....	3/ 217,374
Stagnant swamp	....	83,637
Open swamp and marsh	....	140,897
Total	1,136,336	441,908
Grand total	1,578,244	

1/ Total productive area was estimated from survey data of the Wisconsin Economic Inventory by the Wisconsin Crop and Livestock Service in their county bulletins of the "County Agricultural Statistics Series," Madison, Wisconsin, 1946. This acreage was distributed between upland and swamp in the same proportion as in the Chippewa, Flambeau, and Namekagon working circles of the Chequamegon National Forest.

2/ The unproductive area is a residual after taking the productive area from the total area of forest, wild land, and swamp land.

3/ A substantial portion of this land is potentially productive, but would require planting. The rest is rocky, sandy, or has thin soil which would never produce merchantable timber.

The original forest of pine, hemlock, and better hardwoods is gone, except for some remnants of old-growth hemlock and scattered hardwoods left during the first cutting. The succeeding second growth is still largely below merchantable size. Timber types will continue to change as the result of fire protection, emergence of slow starting species, the decline of short-lived species, cutting, and planting. An approximate distribution of timber types is given in table 3.

Table 3.--Approximate acreage of timber types on productive forest land 1/

Type	Percent	Acres
Aspen-birch	42	477,261
Mixed hardwoods	36	409,081
Total hardwoods	78	886,342
Pine	2	22,727
Spruce-fir	5	56,817
Swamp types	15	170,450
Total softwoods	22	249,994
Total productive forest area	100	1,136,336

1/ The 1,136,336 acres of productive forest was apportioned among swamp and upland forest types according to the type of land (swamp land was assumed to carry swamp types). Upland was apportioned among upland types according to a composite of the type data available for larger areas which include the Park Falls area. Forest Survey, Wisconsin Economic Inventory, and National Forest data were used.

While no recent survey of forest resources has been made, the Chequamegon National Forest has made estimates as of June 30, 1946 of the size classes of its timber[5]. The national-forest lands are probably somewhat poorer than the average private holdings, since most of them were recently cut, burned over, or tax delinquent at the time of acquisition. At the same time they may be a little better than the average county lands acquired later through tax forfeiture, some of the better of which have been resold.

These estimates indicate that only 2 percent of the National Forest carries saw timber and 15.4 percent poles, while 82.6 percent is in sapling and reproduction sizes. Obviously there will be a considerable waiting period before these forests offer much beyond the present annual volume growth of merchantable timber.

About one-third of the National Forest is made up of the good mixed hardwoods and hemlock, not quite one-half is aspen and white birch, and the balance is conifers, mostly white cedar, balsam, black spruce, and tamarack. The good hardwoods, hemlock and conifers are relatively slow growing. Aspen and white birch grow faster, but are less highly regarded. Aspen usually deteriorates at an early age and, thus, must be cut while still relatively small. It offers the only wood which should be cut in substantial volume in the near future.

Types are changing gradually. In some areas poor (off-site) aspen is being succeeded by balsam. The better hardwoods are also increasing, having been an understory in the poor aspen now deteriorating. Very little hemlock reproduction is in evidence, possibly because of the high deer population. (good hemlock reproduction being reported only in the Indian Reservations, where unrestricted hunting is permitted the Indians). A new survey of the area's forests is needed for accurate appraisal of the present situation.

As shown in table 4, all types of public and private land ownership are found. About 57 percent of the forest lands are in public ownership.

The national, state, and county forests are managed for timber production. Other public lands, amounting to about 150,000 acres or one-sixth of the public holdings, are given less attention, some being examined only at the request of a prospective purchaser of timber or land. These lands include the remaining public domain, state trust-fund lands, and county lands too small and scattered for inclusion in the county forests.

Paper company lands are practically all under management. Those of lumber companies and other logging and sawmill operators are largely saw-timber stands held to provide a reserve for cutting over the next few years, but not now planned to be permanent forests for sawlog production. Other company owned lands (railroad, utility, and mining) are held primarily for other objectives than timber production.

5/ These estimates are based on cruises made during acquisition, with later adjustments made for subsequent cutting and growth.

Table 4.--Forest and wild-land ownership

Ownership	Acres	Percent
Federal	476,788	30.2
State	123,714	7.8
County	299,387	19.0
Other public	5,114	.3
Total public	905,003	57.3
Wood-using industries		
Large local	73,811	4.7
Large absentee	55,542	3.5
Other private	5,008	.3
Total	134,361	8.5
Other companies		
Power	49,005	3.1
Mining	15,849	1.0
Railroad	15,150	1.0
Land	12,984	.8
Other companies	8,874	.6
Total	101,862	6.5
Operators	17,611	1.1
Resorts, clubs, and individual recreationists	12,025	.8
Other individuals holding over 600 acres	28,528	1.8
Farmers	121,116	7.7
Other private	257,738	16.3
Total private	673,241	42.7
Total forest and wild land	1,578,244	100.0

Management by other individual owners varies. Perhaps one-third of the farmers manage their woodlands (fence against livestock and cut selectively). Resort operators and individual recreationists are more interested in keeping their woodlands intact than in cutting timber. Many other individual owners live at considerable distances from their lands and are unable to give them close attention.

Small individual owners, particularly nonresidents, pose the most difficult problem in securing better forest management. A recent discussion of forest ownership in this area described the problem as follows: "Most of the present long-term owners of nonrecreational lands hope either to cut off the timber or to sell their lands. Almost none of them contemplates managing for future forest production, thus the apparent stability of ownership is largely due to the inability of present owners either to sell or to log off the timber rather than to a favorable economic and institutional pattern" (4).

It is quite probable that no more than one-third of the private lands are managed for permanent timber production. The two-thirds not managed, about 450,000 acres, plus the 150,000 acres of public lands not managed, make up over one-third of the total forest area.

Governmental aids take two forms -- tax deferment and assistance in management problems. Because of the long waiting period for returns from young forests and the sometimes high local property taxes, large investments are required to grow trees. In order to offer some tax relief and partially defer taxation until income is realized, the State of Wisconsin passed its "Forest Crop Law" in 1927. This law provides that privately owned forest land, if used for no other purpose, may be entered with the State as forest crop land. After entry there is an annual payment of 10 cents per acre to the State in lieu of taxes, plus a payment of 10 percent of the stumpage value of any timber cut. The State, in turn, makes an annual payment to the local governments to replace the lost tax income.

Another Wisconsin provision permits counties to enter county forest lands, with a total payment made by the State to the local government of 20 cents per acre per year. In return the State receives 50 percent of the stumpage receipts. All the northern counties have entered lands under this provision. In the Park Falls area about 70 percent of the county lands have been entered, and new entries are being made as the lands are blocked. Most of the counties are continuing to trade or purchase scattered lands to form additional blocks for county forests. At least one county has acquired all its remaining public domain and trust-fund lands, with the objective of bringing all its publicly owned forest lands under productive management.

Both federal and state governments have programs for helping private owners in forest management and in meeting special problems. The Extension Service provides two foresters to advise individuals, address groups, and conduct demonstrations of good forest management in several demonstration forests scattered over the State. The Regional Office of the U. S. Forest Service at Milwaukee has a division of State and Private Forestry, one of whose functions is to provide assistance to large private owners. The Lake States Forest Experiment Station at St. Paul conducts research in forest management, much of which is applicable to this area. The Wisconsin Conservation Department employs district foresters who work with the counties and provide technical assistance to their forest administrative personnel, many of whom are not technically trained in forestry.

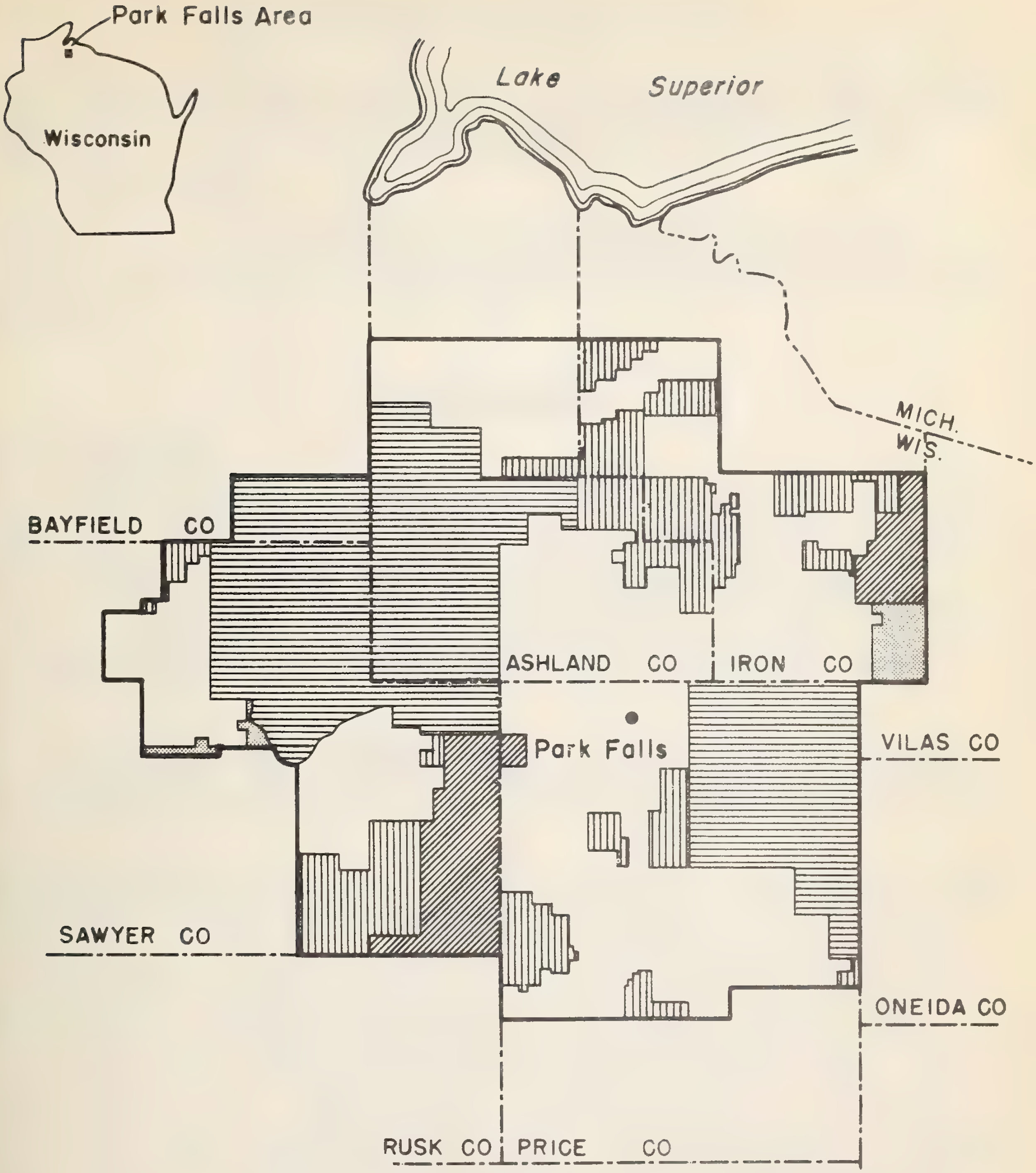

FIG. 2 PUBLIC FORESTS IN THE PARK FALLS AREA

—— Area Boundary
-·-·-·- State Boundary
-·—·—·- County Boundary

▤ National Forest
▨ State Forest
▥ County Forest
░ Indian Reservation

Source: Wisconsin State Planning Board, 1945

PROBLEMS OF FORESTRY AND FOREST INDUSTRIES

Forest and forest industry problems are considered by comparing the present situation with the ideal objectives of (1) fully productive forests, supplying a sufficient annual volume of timber for local industry and some additional volume for export, and (2) industries supplying substantially full local employment.

Forest problems exist in ownership and management of forest lands and in timber sales and operations. Forest industry problems relate to the adjustment of timber consumption to the changing types and quantities of available raw material.

Forestry Problems

Forest Ownership

To become and remain fully productive, the forests must be brought under "willing" ownership (owners planning sustained-yield forestry). About one-third of the forest area is in small, scattered tracts difficult to manage efficiently, or is held by owners not interested in permanent forestry. These include the railroad, absentee owners unfamiliar with local land values or with forest management techniques, and such public owners as the Public Lands Commission, holding the remaining trust-fund lands, and counties holding scattered cut-over tracts not consolidated into county forests.

The railroad is selling lands when possible but has allowed many tracts to go tax delinquent. Many individual owners are waiting for better prices or are unable to devote attention to their lands either for management or disposal.

The Public Lands Commission has followed a policy of withholding lands from public sale but has sold timber periodically[6]. While the trust funds have benefitted from this policy (because no taxes, payments in lieu of taxes, or fire protection costs are incurred), consolidation of permanent forests, public and private, has been hindered and over-all supervision made less efficient. For example, in the portion of Price County within the Park Falls area, the Public Lands Commission holds lands in 158 different survey sections. Seventy sections have only 40 acres of state lands each, and 51 only 80 to 120 acres. Thirty-one have 160 to 280 acres, and only 6 have 320 or more acres. In many sections in the federal and county forests, the State is the only other owner, and in several sections the State holding is only a "forty." In practically every section where both trust-fund lands and other public lands are found, the acreage of the other owner exceeds the trust-fund acreage. The Commission is not authorized to practice forestry. It cannot exchange and block up its holdings.

6/ Policy statement: P. 3--"The withholding of State school lands from public sale as a general policy, which has prevailed since 1913, has been continued." P.4--"This timber was sold under the selective-cutting method, as provided by Sec. 24.39 Stats.." From Biennial Report of Commissioners of the Public Lands of the State of Wisconsin for Biennial Fiscal Term ending June 30, 1946, Madison, Wisconsin, 1946.

Counties, the other large public holders of unconsolidated forest lands, sell when the opportunity arises, trade when possible for lands which can be incorporated in county forests, and sometimes sell timber. The acquisition of or trading for these lands is expensive for any owner, present or prospective. Cruising and title-clearing costs make up a large proportion of the cost of the lands, especially those in small, scattered tracts.

Forest Management

While the public forests are under management, the acreage supervised is high for the personnel available. Sales cannot always be made at the proper time. Thinning, planting, and interplanting cannot be done on the scale necessary for optimum forest growth.

County forest management is generally less intensive than that on other public forests. Thus far the county foresters have had to devote almost full time to handling the increasing number of timber sales. They have been unable to examine all of the county lands and to plan management and sales for the forests as a whole. Consolidation or disposal of the scattered lands has lagged for the same reason. Although most counties do some planting, a very great proportion of the total job remains to be done.

Counties receive 20 cents per acre of county forest as an annual payment from the State, 10 cents of which is for forest management and improvement. The tax-forfeited lands not in county forests contribute to county revenues only through timber sales. Additional expenditures for blocking, management plans, thinning, better planning of timber sales, etc., would bring good returns in the long run. These would come directly from increased timber sales and indirectly from taxation of forest operators, industries, and employees. The question may well be raised: "How much is a county justified in spending on the resource which is the basis for one-third to one-half its economic activity?"

Although county agents and state extension foresters assist individual owners, they are too few to meet the need for management assistance and particularly for the task of convincing many owners of the value of good forest management.

Timber Sales and Operations

Most timber cutting is done in the fall, winter, and early spring months. Operations range from large scale logging by lumber and paper companies, to independent loggers with heavy equipment, and to farmers working in their spare time on small volumes of stumpage.

Many small operators, mostly part-time farmers, have free time for only a portion of the work day and would have difficulty in working for larger operators. Others prefer the independence of working for themselves. Because woods work in many cases means the difference between a comfortable living and a bare existence, considerable effort is justified to maintain a supply of stumpage for small sales to these operators.

The small operators usually have small scale equipment, and often very little capital. They try to purchase small tracts of stumpage readily accessible to roads. Their limited capital prevents the purchase of a large volume of stumpage and large expenditures for roads, clearing, and other overhead costs of a logging operation.

Public forest owners make many small sales at present, but prefer larger sales which permit more efficient cruising and scaling and often require less supervision of cutting. Most rangers do not have the time to administer adequately all the small sales which are requested.

Small operators often purchase stumpage or timberland, either scattered county lands or individual holdings, for clear cutting, forfeiting the land for taxes after removal of the merchantable timber. Many of them are not familiar with cutting practices needed to maintain and improve the forest, lack the capital to engage in that type of forestry, or simply are not interested in permanent forestry. Small private forest landowners have difficulty in selling stumpage to be cut selectively because they are not familiar with good cutting practices, their small tracts would not offer an operable volume of timber if partially cut, or because they live some distance from the timber and cannot supervise the cutting.

The independent operators, especially those operating on a small scale, sell logs in small quantities, securing cash as they cut. The small volume offered per sale precludes classifying logs to secure the best return (high quality logs for veneer, other logs for lumber, and lower quality material for pulpwood). Often the small operators are not familiar with markets for the various classes of material. They usually sell it to a single buyer. Some buyers extend credit as the logging progresses, with the logger expected to sell all his logs to that buyer.

Better credit facilities are needed, especially for supplying small, short-term loans. The costs of supervising such loans is high unless performed as part of another activity. Better credit facilities would facilitate larger stumpage sales to the small operators, and thus would assist the public foresters by reducing the need for very small sales.

Problems of Forest Industries

Forest industries have had the problem of continually adjusting to a changing type of raw-material supply since the annual cut of virgin timber started to decline. The successors of the large sawmills have been smaller plants using second-growth timber, using the wood more completely, and sometimes manufacturing the lumber into higher value products. Local industrial wood consumption in 1946 totaled about 53 million board feet and 68,000 cords (table 5).

Table 5.--Wood consumption by local industries -- 1946 1/

Industry	Consumption		Total cubic feet equivalent of standing timber 2/	Percent
	Board feet	Additional cords		
Paper mill, defiberizing mill and miscellaneous plants.................	10,429,400	68,300	8,500,000	42.5
Veneer mills..............	11,458,000		3,100,000	15.5
Sawmills.................	31,019,000		8,400,000	42.0
Total.................	52,906,400	68,300	20,000,000	100.0

1/ 1945 data used for small sawmills where 1946 data were not available.

2/ Includes tops, limbs, and other material lost or not utilized. Board feet converted at 270 cubic feet per 1,000 board feet. Cords converted at 83 cubic feet per cord.

At present the supply of merchantable timber is apparently decreasing, with the exception of balsam for pulpwood and aspen for fiber, pulp, and lumber. Industries secure the bulk of this lower quality wood locally, but most of the better material must be imported (table 6). Decisions affecting plant expansion and increased timber consumption are complicated by lack of information as to timber resources. Some operators of present industries have looked with disfavor on efforts to attract additional industries to the area.

Table 6.--Sources of wood for local industries

Kind of wood	Wisconsin	Outside Wisconsin
	Percent	Percent
Pulp and fiber wood		
Hardwoods (40 percent)......................	94	6
Softwoods (60 percent)......................	54	46
Veneer logs................................	21	79
Saw timber.................................	(1/)	...

1/ Practically all procured in Wisconsin, but some of the better hardwoods from outside the Park Falls area.

The establishment of new plants must be guided by the probable supply of and demand for timber in the near future. New plants needing species and sizes already in short supply would have poor chances for survival and would jeopardize the timber supply of present plants. New plants using materials now wasted or under-utilized and materials increasing in supply would have a good chance for survival and would be valuable contributions to stable rural industrial expansion.

The problem of choosing between types of industries confronts industrialists and investors and all local people and groups interested in local industrial development. Desirable industries are those which can be supplied with local raw material without overcutting the forests and without creating a more serious raw material shortage for established industries. A wrong choice could increase economic instability and delay stable industrial expansion.

Promotion of the Public Interest

The public interest, both local and general, will be promoted by measures which contribute to the stability of the local economy and to its expansion. Local people are naturally interested in the problem, as are the various units of government. This study will discuss a possible approach, including some alternatives open to public agencies, aspects for consideration before group action in encouraging or discouraging new industrial development, and a type of local group which could well take active part in guiding economic development.

POSSIBLE MEASURES FOR IMPROVEMENT

Forest Ownership

Improved productivity of the area's forests is of primary importance in any program for economic development and stabilization. A first step is consolidation of the forests into blocks large enough for efficient management and under owners planning permanent forest ownership and management.

The counties holding the largest acreage of scattered lands are the logical public agencies to attempt consolidation. The benefits of increased timber sales and local industrial development should be weighed against the cost involved. State assistance may be justified in view of the timber needs of firms in other parts of the State and the alternative of high welfare costs in the event of an economic recession.

The State Land Commission policy of retention of lands must be reexamined and liberalized before satisfactory blocking can be attained in some areas. While their policies have worked to the benefit of the trust funds, the withholding of lands hampers blocking of forest lands and makes management of the interspersed lands less efficient.

Increased forest acquisition by private companies planning permanent programs is desirable, particularly when the acquisition is by blocking up presently unconsolidated tracts. The possibility of further tax concessions should be explored as an incentive to industrial forestry. The Minnesota version of the Forest Crop Law requires an annual payment of only 6 cents per acre. Entry of private lands under this law, while slow, has progressed more rapidly than in Wisconsin. Proposals in other states have included elimination of annual taxes, forest taxation to be limited to yield taxes on the timber as harvested. Local property tax concessions for a few years might also be investigated. They should probably be limited to private forests consolidated from small tracts and to companies agreeing to do some processing of the timber locally.

County policy in disposal of scattered lands should insure that marginal or nonagricultural lands are not sold later for farm sites. Land companies and individual speculators have sold many such tracts for farm and home sites. Many buyers have been city people and other nonresidents, poorly equipped to judge local agricultural potentialities. Thus much land best suited for forestry is divided into small holdings, and into the hands of people interested in acquiring a place for retreat in hard times. Very few such owners can and will practice good forestry.

Both foresters and agricultural workers recognize the need for extreme care in promoting new settlements. There is the ever-present danger of attempting to farm lands not suitable for farming with the result that settlers become stranded on unproductive land and add to the local relief load and employment problem. Present efforts to encourage settlement should be limited not only by the productivity and location of the land to be farmed, but also by present and probable future employment opportunities. The total population is now approximately in balance with available jobs. County land-use zoning is providing a safeguard against settlement on isolated cleared tracts. It should be extended while population pressure is relatively light.

Management Practices

With continued good fire protection and improved cutting practices, the productive forest area of 1,136,336 acres can supply the present annual local consumption of saw timber, pulp, and fiber wood. It would need to yield only 47 board feet of all species per acre annually to supply the present consumption of saw timber, plus about 0.06 cord per acre to supply pulpwood and other fiber needs. This growth rate can be maintained and increased substantially during the present rotation by improvement cuttings and could probably be doubled after 50 years. To increase growth to this extent would require light frequent cuttings to harvest mortality while it was still merchantable, and conservative cutting of small saw timber to increase the growing stock. Interplanting and some thinning of unmerchantable sapling stands could increase the growth rate even more, but these measures may not be self-liquidating at present costs. (Table 7.)

Careful cutting is particularly essential at present because saw timber and near saw-timber size stands make up a relatively small proportion of the total forest areas. Cutting practices should be designed to bring into and keep much more timber in the large pole and small saw-timber sizes. Timber in these sizes generally makes the best growth in volume and value.[7]

7/ A 16-foot log, measuring 8 inches at the small end, contains 40 board feet; measuring 10 inches, the same length log contains 65 board feet, and measuring 12 inches, 95 board feet. On many sites trees will add 2 inches in diameter in 10 years, if properly spaced. They will also grow in height and improve in quality, making a total volume and dollar value increase of over 50 percent every 10 years. (The International 1/4-inch log rule is used in this example.)

Table 7.--Needed growth rates to meet local wood demand

Type	Productive forest area	Current consumption		Consumption per acre		Equivalent in standing timber per acre
	Acres	Board feet	Cords	Bd. ft.	Cords	Cu. ft.
Aspen-birch....	477,251	28,987,000	27,320	61	.06	21
Mixed hardwoods	409,081	[1]17,662,000	......	43	...	12
Softwoods......	249,994	6,257,000	40,980	25	.16	20
Total.......	1,136,336	52,906,000	68,300	47	.06	18

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[1] All veneer wood and one-fifth of sawmill cut assumed to be better hardwoods.

While some planting is being done by both public and private owners, more than 100,000 acres of potentially productive upland remain deforested. If planted and managed carefully, this land could ultimately supply timber for another paper mill or two or three more sawmills similar to the largest now in the area. Many more acres need interplanting to improve stocking and species. A large-scale planting program, however, probably should await lower planting costs.

Continued good fire protection is essential for natural reproduction of the better species and to secure natural conversion of aspen stands to better species, as aspen often seeds in or sprouts heavily after fires.

A major problem in securing good reproduction is regulation of the deer herd, although the solution is beyond control of the foresters. The Park Falls area lies almost entirely within the winter deer range termed "critical" by the Wisconsin Conservation Department (see map by B. L. Dahlberg, p. 9, Wisconsin Conservation Bulletin, January 1949). The deer herd browses heavily on reproduction, especially on white pine, maple, and hemlock. The effects of heavy deer browsing in northern Wisconsin have been summarized as follows:

> "The annual damage to natural seedling production in the forest areas was calculated at 650 million seedlings as compared with approximately 15 million planted from nurseries each year. This damage to forest reproduction was reported to be 100 times more serious than the State's forest-fire losses in 1947" (3).

While the counties are given very valuable management assistance by the district foresters provided by the Wisconsin Conservation Department, considerably more such supervision should be provided either by the State or the counties. Each county should have a trained forester in charge of its forests. Most cruising, marking, and scaling can be done by woodsmen with practical experience, but good management planning and the scheduling of cutting requires professional training. A few more people will be needed to handle sales work where lighter, more frequent cuttings are made, since such operations require planning and supervision. However, the extra costs would soon be regained by increasing timber sales and the healthier status of woods operations and forest industries.

More forest management assistance is needed by farmers and other small forest owners. The farm wood lots, if maintained in a good state of productivity, could substantially increase the income per farm. Such assistance must now come from the county agents and to a small extent from the foresters managing public forest lands. Some counties in other states have provided assistant county agents whose task is to provide assistance in forest management. Expansion of public forest-management aids now offered to private owners should be justified on the basis of improving supplies of raw materials for forest industries, both local and elsewhere in the State.

The area may offer an opportunity for a private consulting forester, if he could offer a complete forest-management service, paying taxes, watching for trespass, marking trees for cutting, and marking and supervising timber sales. Such a service should appeal to many absentee owners, but is not available in the area at present.

Marketing and Credit

The problem of realizing the best possible returns from the timber cut faces the part-time farmers and other small operators particularly. The solution must be to accrue a sufficient volume of timber to permit sorting and sale in various markets.

In several other areas small marketing co-ops have been successful. These groups pool and classify logs, offer larger volumes for sale, and follow the markets closely. They sometimes are able to secure some of the buyer's commission for themselves. Several have accumulated funds from which they finance their members. Most of these groups have received impetus and advice from county agents or public foresters at the start. However, they often become inactive when the original promoter is transferred or can no longer devote time to the project. The more permanent operations have been those with local leadership, either from individuals or local cooperative organizations already operating successfully.

A small marketing co-op in northern Washburn County, Wisconsin, concentrates on pulpwood, pooling receipts until a carload is obtained.. During the war a farm co-op organization in western Wisconsin operated a chain of concentration yards, sorting logs and selling in various markets to obtain the highest return. One successful co-op in New York operates its own sawmill, and also helps members in marketing timber for cutting (1).

A forest-management service in connection with a marketing co-op could offer service to both local and absentee landowners in supervising timber cutting, meet many of the marketing problems of small operators, and possibly administer a credit program. The possibility of such a group is promising, but would require interested local leadership.

Adjustment of Industries to Timber Supply

Supplies of old-growth hardwoods and hemlock are dwindling, being limited to scattered and low-grade trees left during previous logging. Aspen is on the increase as the even-age stands mature, but most of the material will be in pulpwood and very small log sizes. Present industries should plan to use more aspen where possible. While aspen supplies should meet local needs, competition for timber from outside industries could easily increase and keep prices up. Marginal plants would be most affected by higher log prices, the small sawmills probably first. The defiberizing mill, paper mill, and veneer core-stock mill should have little difficulty.

The paper mill has increased its use of aspen pulpwood substantially in the last 10 years, and will probably have to turn more to hardwoods in the future. A substitute must be found for old-growth hemlock and some Canadian spruce, supplies of which are being restricted. The new semi-chemical method for pulping hardwoods may make this shift more feasible. Thinnings in the good hardwood stands will also soon be available for pulpwood.

Aspen can be used for such veneer products as matches, containers, baskets, boxes, and crates. As plywood it can be used for cabinets, signs, luggage, etc. Although aspen produces few logs of veneer quality, the local mills may be able to secure enough to supplement their better logs and more easily extend operations until better second-growth species are available (2).

Small sawmills use less than one-fifth of the timber consumed annually. They operate intermittently and their product is often poorly sawed. Most of the lumber is used locally, much being custom sawed. While the portable mills have lower transportation costs in marketing than do stationary mills, their product is lower grade and their net profits usually lower. With slightly lower lumber prices and continued strong demand for stumpage, these mills will not be able to compete in the lumber market. They will, of course, continue to saw small volumes and do a certain amount of custom work.

In general the mills producing good quality lumber, plants doing remanufacturing of lumber in addition to sawmilling, and other industries having a high-value final product will be best able to compete for stumpage. Local companies have considerable competitive advantage in lower freight costs for raw materials.

Better market information is a primary need of small plants. Buyers are scattered and practically all have different specifications. Individual operators cannot afford extended trips investigating markets when their volume of production is small. Some assistance in locating markets would assist these operators greatly. It comes now erratically through correspondence and conversation. A regular market news letter from the Department of Commerce, the Forest Products Laboratory, or the Extension Service might meet much of the need. Some assistance in marketing may be gained from correspondence with trade associations of firms purchasing dimension lumber. These are listed in the Commercial Standards.[8]

8/ Several pertinent Commercial Standards are listed in the Bibliography at the end of this report.

Desirable New Industries

New industrial development must be geared closely to the resources if both are to reach their best productivity. The demand for timber must be held at no more than the present level for at least two decades, assuming no change in imports of timber, if the forests are to accumulate growing stock and increase annual growth. Over this period industrial expansion should be in the field of (1) closer utilization of available material, low-grade logs, slabs, edgings, and other mill waste; and (2) development of more remanufacturing of lumber and other primary output into higher value products.

Old-growth hardwoods, even of low quality, can be utilized further than at present if markets are fully explored. Clear pieces can be sawed from low-quality boards, local wage rates (slightly lower than in urban centers) giving an advantage to this utilization. The basic product is hardwood dimension lumber. Pieces may be square or rectangular and vary in length from about 18 inches up. Specific dimensions are, of course, named by each buyer. Such material is used in furniture, toys, veneer cores, prefabricated buildings, and many other products.

Local lumber, slabs, and edgings can be manufactured into higher value products, and such manufacture is well suited to small plants. Possible products include furniture parts, molding, handles, dowels, toys, clothespins, chests, racks, shelves, clock cases, and trophy bases. Aspen lumber is well suited for boxes, crates, pallets[9/], grain doors for box cars, snow-fence lath, slack cooperage, and car blocking.

An integrated plant at Ojibwa, in Sawyer County just west of the Park Falls area, has provided an example of intensive utilization. The plant was built around a drum saw producing aspen slack cooperage. Logs were sorted before being cut to the slack cooperage length, and those of pulping quality but defective for cooperage were shipped to the paper mill at Park Falls. Slabs from the stave saw were run through a chipper directly into a gondola, the chips being exported for use in the filtering of manufactured gas. Sawdust was mixed with other ingredients to form a sweeping compound. A short-bolt sawmill and circular gang resaw produced dimension lumber, and a small dry kiln was built.

Promotion of the Public Interest

Local people and groups should consider the formation of a permanent local committee to further economic development, particularly through forests and forest industries. Such a committee could include public-spirited people, such as bankers, editors, public and private foresters, representatives of local industries, trade union officials, and public officials. It could examine public policies and support those contributing to stable development. It could advise prospective new firms and encourage those which would benefit the community. It could guide new rural settlement and agricultural development. It could secure assistance from outside agencies. In general, it would represent the local public interest in dealing with public agencies, local government, and present and prospective industries.

9/ A pallet is a portable platform upon which goods or materials are piled for moving or shipping.

The problem of assuring local industries of a stable supply of timber may assume increasing importance, particularly if outside competition for timber should increase, or if outside companies acquire a large proportion of local forest land. County boards should appraise the future timber needs of local industries before disposing of lands to outside companies, to safeguard local employment. Retention of a substantial acreage in public forests, with timber disposed of in public sales, will assure local industries of equal access to the timber. With low timber transportation costs, they should be able to compete successfully with outside bidders.

The U. S. Forest Service is authorized to take measures to provide "an adequate and permanent supply of forest products for local requirements, or for established industries dependent upon national-forest timber, or to promote the welfare of local communities dependent upon national-forest operations for employment..." To date only a few specific proposals have been made, and those have been in the far West. One of the authorized measures is sale of timber with the stipulation that it be processed in a specified area. In an area such as this, with several public owners present, joint action would be needed for any effective stabilizing program.

In applying a program for stabilizing the timber supply of a community when timber is scarce, it must be recognized that one community can be stabilized only at the expense of other communities also dependent on timber. Some justification may be obtained from the consideration that (1) communities in the forest areas have few resources other than their forests, while communities farther south often have better agricultural land and more diversified industries; and (2) wood-using industries in the forest areas have good chances for continuing as permanent producers while industries farther from their timber supply will always face higher costs.

Another important problem is that of advising those considering the establishment of new industries. Misguided enthusiasm in encouraging new plants or, conversely, the discouraging of desirable industries, could have serious effects on long-range development.

Accurate information is needed as to acreage of each size class of the various tree species and estimates of the annual allowable cut[10] for the next 30 years. It would provide a basis for contraction or expansion of plant capacity and shifts in species consumed and types of products to be manufactured. This, together with information as to the volume of timber used annually by present industries, would prove extremely valuable to those planning or promoting new industries.

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[10] Allowable cut is the quantity of timber which can be cut annually while building growing stock to the levels needed for efficient timber production, and improving the acreage distribution of the various timber size classes.

Large forest land owners, particularly public owners, are handicapped in planning timber sales and intensive management by lack of information on growth, mortality, merchantability, etc., of their timber. As present staffs must devote most of their time to timber sales, they have great difficulty in examining stands not yet merchantable. A national program for inventory of forest resources is headed up by the U. S. Forest Service through its Experiment Stations. Work is now progressing in the Lake States as funds and personnel permit. State and local units of government are cooperating in many areas, and several wood-using industries have contributed personnel, aerial photos, or data. The Wisconsin Conservation Department is now cooperating with several Wisconsin counties in inventorying their forest resources. The Chequamegon National Forest plans to start its survey in the next year or two. Similar work is badly needed over the balance of the Park Falls area.

SUMMARY

Although activity in the woods and mills of the Park Falls area is considerably below that during the cutting of the original forests, it is still the mainstay of the local economy. The present second-growth forests, even though comparatively depleted, are capable of supporting the present volume of industry and employment. With proper care, they can soon begin to produce steadily increasing annual yields of wood.

However, total growth of the forests at present is considerably below that of which they are capable. Among the measures needed to increase the yield, both in volume and value, are:

1. Forest lands now broken into small ownership tracts, particularly those now given little attention, should be consolidated and brought under systematic management.

2. Improved cutting practices would stimulate growth of the remaining stands in volume and value. These and other needed forestry practices could be encouraged through education, demonstration, and other public aids. Owners should insist on good cutting practices when they sell stumpage. Some lands require other measures, including thinning of thick unmerchantable stands and interplanting of thin stands.

3. Better marketing of forest products, especially by small operators, would increase the returns to forest owners and operators. Some arrangements for pooling timber are needed, which would permit sorting and selling the various products (veneer logs, saw logs, pulp and and fiber wood, etc.) in their best markets. A cooperative log pool could probably supply the necessary facilities. Such an organization might also provide credit, enabling small operators to handle larger stumpage purchases.

With the widespread application of better forestry practices, the annual cut of timber could eventually be doubled. With an increased proportion of the cut made up of larger sizes and better species, and with improved marketing, the annual dollar return would increase even more. However, even with good practices, the forests will not reach full productivity for at least 50 years.

While forest growing stock is being built up over the next two or three decades, the supplies of timber for industry will remain about as at present. Aspen supplies will increase, but there will be even less old-growth hardwoods and hemlock.

In this intermediate period any increases in industrial employment must come from utilization of material now wasted and from industries manufacturing local lumber and other material into more valuable products. Such increases are limited only by the ingenuity and business acumen of local industrialists. These increases, plus those resulting from the future increased annual yields of timber, should ultimately provide at least double the present amount of employment.

Several steps can be taken to secure the best use of timber available:

1. Existing industries should investigate possible adjustments in their processes and products to make fuller use of the kinds of wood currently available.

2. New industries based on the use of small aspen, low-grade hardwoods, and materials presently wasted or burned, should be encouraged. New industries which would further deplete the scarce species and grades should be discouraged.

3. Timber resources of the area should be inventoried, and the inventory brought up to date at intervals. Such information is vitally needed to guide industrial development.

4. Local leadership should accept the responsibility for guiding industrial development and promoting measures which will facilitate such development.

Industrial employment at this level and agricultural employment at the present level, plus the expected expansion in recreational and service activities should encourage steady growth in population and wealth; and ultimately give economic stability and development comparable to that of any other part of the country. The goal is feasible; most of the measures required for its attainment are well defined. The program is all the more worthwhile because it can be furthered best by local leadership and planning, with a minimum of direction and subsidies from larger units of government. Its achievement should be the basic objective of local governments and organizations.

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A series of reports dealing with the utilization of aspen has been published recently. These include "Aspen Properties and Uses," "Aspen Lumber Grades and Characteristics," "Aspen Lumber for Building Purposes," and "Aspen for Containers." Single copies may be obtained free by writing to the Lake States Forest Experiment Station or to the Forest Products Laboratory.

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